

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US04/39314

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) : C12N 5/02  
US CL : 435/325,374

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 435/325,374

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ANNUAL REPORT, 2003 (pages 1-132), NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA), Physical Science Research Division (at <a href="http://spaceresearch.nasa.gov">http://spaceresearch.nasa.gov</a> ), especially Chapter 4, page 16, Cellular Biotechnology Program Summary & Cellular Biotechnology Flight Experiments.	1-10, 28-30
X	LAKEY, J.R.T. et al. Novel approaches to cryopreservation of human pancreatic Islets. Transplantation. 27 September 2001, Vol. 72, No. 6, pages 1005-1011, entire document.	1-4
—		5-10, 28-30
Y	US 5,964,261 A (NEUENFELDT et al) 12 October 1999 (12.10.1999), abstract, Summary of the invention, column 4-6, and example 4	1-10, 28-30
Y	US 5,863,715 A (RAJOTTE et al) 26 January 1999 (26.01.1999), abstract, Fig. 1, Summary of the invention, columns 6-8, examples 1-8.	1-4, 7 and 28-30
A	US 5,679,565 A (MULLEN et al) 21 October 1997 (21.10.1997), abstract, Summary of the invention.	1-10, 28-30
A	US 5,827,741A (BEATTIE et al) 27 October 1998 (27.10.1998), abstract, summary of the invention.	1-4, 7 and 28-30
A	NAUGHTON G.K. From lab bench to market: Critical issues in tissue engineering. Ann. N.Y. Acad. Sci 2002, Vol 961, pages 372-385, entire document.	1-10, 28-30

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
<p>* Special categories of cited documents</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>E earlier application or patent published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>			
	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
	"X"	document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
	"Y"	document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
	"&"	document member of the same patent family	

Date of the actual completion of the international search	Date of mailing of the international search report
29 December 2005 (29.12.2005)	25 JAN 2006
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 223 13-1450 Facsimile No. (571) 273-3201	Authorized by: Satendra K. Singh Telephone No. 571-272-8790

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**Box No. π Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons

- 1  Claims Nos because they relate to subject matter not required to be searched by this Authority, namely
  
- 2  Claims Nos because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically
  
- 3  Claims Nos 11-27 because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6 4(a)

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows

- 1  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
- 2  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees
- 3  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos
  
- 4  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims, it is covered by claims Nos

- Remark on Protest
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee
  - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation
  - No protest accompanied the payment of additional search fees

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## Continuation of B. FIELDS SEARCHED Item 3:

## EAST:

USPAT, PG-PUB, USOCR, JPO, EPO, DERWENT

STN: (STIC-SEARCHED)-

REGISTRY, ZCPLUS, HCPLUS, WPIX, MEDLINE, EMBASE, BIOSIS, BIOENG, BIOTECHNO, BIOTECHDS, SCISEARCH, CONF, CONFSCI, CANCERLIT, CABA, DISSABS

## SEARCH STRATEGIES:

cryopreserv? or cryoprotect? dmso, cell culture;  
device or vessel, cryopreserv? and valves, filter, medium, diaphragm, sensor,  
device, islets, transplantation, dmso, mems, cryopreserv?;  
culture, vessel or device, gas, valves, capsul?, absorbet? filter,